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ABSTRACT

In the context of a move toward physician participation in counseling patients to reduce risk factors and promote healthy lifestyles, a study was done of whether medical students perceive themselves to be self-efficacious in educating patients for health promotion and of how various educational experiences help to develop self-efficacy. The study focused on primary prevention or health promotion which requires physicians to counsel their patients and to attempt to change their behavior. The study used a self-efficacy theory concerned with individuals' beliefs about their capability to perform particular tasks. For the study, 28 students in their fourth year of medical school were randomly selected and interviewed and asked to complete a nine-item "Self-Confidence in Patient Education for Health Promotion" questionnaire. In addition, interviews were held with six faculty members and document and archive review constituted a third source of data. Among results were the following: (1) learning about health promotion was neither systematic nor comprehensive; (2) significant differences existed in the depth and breadth of student experiences in learning about patient education for health promotion; and (3) self-efficacy perceptions varied with patterns of experience. An appendix contains the questionnaire and 50 references are included. (JB)

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Medical Students' Development of Self-efficacy in Conducting Patient Education for Health Promotion: An Analysis of Learning Experiences

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Objectives

Physicians are being encouraged to counsel patients to reduce risk factors and promote healthy lifestyles (Bartlett, 1989; Breslow, 1990; Lawrence, 1990; Ockene, 1987; U. S. Department of Health, Education, and Welfare, 1979; U. S. Preventive Services Task Force, 1989). A major barrier to greater physician attention to educating and counseling patients, however, is physicians' lack of confidence in their ability to perform these activities and to motivate behavioral change in patients (Becker & Janz, 1990; Lawrence; Orlandi, 1987). The challenge to medical schools is to improve training in this area, and an essential first step in addressing this challenge is to determine how medical students currently are developing skills in health promotion education and counseling. The purpose of this study was to determine (a) how confident, or self-efficacious, medical students perceive themselves to be in carrying out patient education for health promotion and (b) how various educational experiences relate to the development of self-efficacy. The study focused on health promotion, or primary prevention, rather than on secondary or tertiary prevention. The latter are concerned with "the reparative and interventionist orientation that has long characterized American medicine....Primary prevention presents a greater problem. It often requires physicians to counsel their patients and attempt to change their behavior" (Nickens & Petersdorf, 1990, p.2).

Theoretical Framework

Self-efficacy Theory. Self-efficacy theory (Bandura, 1977), concerned with individuals' beliefs about their capability to perform a particular task, is central to this study. The construct is significant to an examination of medical students' learning about patient education in health promotion because higher levels of self-efficacy, or self-confidence in performing a task, are associated with greater involvement in an activity as well as persistence and effort in performing that activity (Bandura, 1977, 1982, 1986; Maddux & Stanley, 1986). Individuals form judgments of self-efficacy using information acquired from four sources: (a) task performance, (b) vicarious experience with a task, (c) verbal persuasion that one can perform a task, and (d) physiological

states (e.g., relaxation or tenseness) associated with a task. Information from task performance is theorized to be most influential, followed in order by information from vicarious, persuasory, and physiological sources. Information acquired from the various sources does not influence perceptions of self-efficacy directly, but is first appraised and integrated by the individual. Because of this, educational practices can either enhance or inhibit self-efficacy development (Bandura, 1986; Schunk, 1984, 1985). Self-efficacy-promoting educational practices include the following: (a) combining explanations with modeling, (b) providing explicit strategy training, (c) giving explicit performance-related feedback, (d) attributing student success to effort rather than innate ability, (e) setting specific goals that are proximal rather than distant, and (f) tying rewards to individual students' accomplishments (Schunk, 1985).

Self-efficacy is measured by asking task-specific questions addressing magnitude, strength, and generality of self-efficacy perceptions. To measure magnitude, tasks that vary in difficulty or complexity are listed in order, typically from less to more difficult or complex. Strength is measured by having respondents indicate on a scale their degree of certainty or confidence that they can perform each task in the ordered list. Generality is assessed examining patterns of self-efficacy in multiple related domains (Bandura, 1982). Because self-efficacy is situation-specific, new instruments are continually being devised to fit the particular research questions at hand. Typically, these instruments focus on strength of self-efficacy only, with little attention given to magnitude or generality (Vispoel, 1990).

Health Promotion Teaching in Medical Education. Increased attention has been given in the past decade to encouraging health promotion teaching in medical schools (Association of American Medical Colleges, 1984; Bloom, 1989; Sullivan, 1990; World Federation for Medical Education, 1988). Various efforts to incorporate health promotion teaching in medical education have been described. These represent integrated approaches that weave health promotion teaching throughout the curriculum (e.g., Dismuke & McClary, 1990; McBride, 1990; Ockene, Ockene, Kabat-Zinn, Greene, & Frid, 1990) as well as short-term, modular approaches (e.g., Allen, Bland, & Dawson, 1990; Amos, Church, Forster, Robertson, & Young, 1990; Gillies & Elwood, 1989). Senior medical students have been found to be interested in and concerned about the importance of health

promotion, to have adequate knowledge about risk factors, but to have difficulty translating knowledge into practice (Rubin, Sobal, & Moran, 1990).

Patient Education in Medical Practice and Medical School. Models of patient education vary in the degree to which they are content, physician, or patient-oriented (Berg, 1987; Rosenstock, 1988). Increasingly, the patient-centered model is advocated for use by physicians in attempts to influence their patients' health behaviors (Ockene, 1987; United States Preventive Services Task Force, 1989). This, however, is a new emphasis for physicians, and many studies have documented physicians' discomfort and lack of confidence in taking on the role of patient educator in health promotion efforts (e.g., Freeman, 1987; Larsson, Saljo, & Aronsson, 1987; Lewis, Clancy, Leake, & Schwartz, 1991; Rosen, Logsdon, & Demak, 1984; Valente, Sobal, Muncie, Levine, & Antlitz, 1986; Wechsler, Levine, Idelson, Rohman, & Taylor, 1983). Many medical students perceive that they need more training in patient education and communication (Association of American Medical Colleges, 1990; Maheux, Delorme, Beland, & Beaudry, 1990). Little on teaching patient education to medical students is reported in the literature. Programs to teach a patient-centered approach, however, have been described (Levenkron, Greenland, & Bowley, 1990; Ockene et al, 1990; Strecher, O'Malley, Villagra, Campbell, Gonzalez, Irons, Kenney, Turner, Rogers, Lyles, White, Sanchez, Stritter, & Fletcher, 1991).

Research Questions

The following questions guided this study:

1. What types of educational experiences do students have in learning about patient education in health promotion?
2. How consistent are these experiences with theory on the development of self-efficacy?
3. Are different types of student experiences associated with different levels of self-efficacy?

Method

Design. Because the problem is complex and has not yet been well studied, a qualitative case study approach was chosen (Merriam, 1988; Yin, 1989). The unit of analysis was the undergraduate program of a mid-sized public medical school at a large southeastern university. The medical school curriculum consists of two preclinical years followed by two clinical years,

typical of most American medical schools (Bloom, 1989). The three topics chosen as the focus of the study were smoking cessation, nutrition for cardiovascular health, and exercise. These areas are among those targeted for emphasis by the U. S. Department of Health, Education, and Welfare (1979). In addition, the three areas chosen are closely associated with cardiovascular and pulmonary health, often the central focus of health promotion efforts by medical practitioners, and therefore most likely to have been addressed in the medical school curriculum (U. S. Preventive Services Task Force, 1989).

The case study method typically involves multiple data sources to develop converging lines of evidence (Yin, 1989). Interviews with fourth-year medical students, in the final months of the academic year, served as the primary data source, with additional confirmatory data gathered through interviews with faculty and reviews of documents and archival records. The goal of the sampling strategy for student interviews was to focus on students entering the primary care fields of family medicine, obstetrics/gynecology, internal medicine, and pediatrics, who were thought most likely to be concerned with health promotion issues and most likely to have had learning experiences in health promotion areas. Within that criterion, another goal was to select typical fourth-year medical students, so that a picture of the typical experience could be drawn (Goetz & LeCompte, 1982; Merriam, 1988; Patton, 1980). As it was assumed that all fourth-year students met the criterion of being "typical," names were selected randomly from a list of the 76 fourth-year students interested in the four primary care fields. A goal of 25 to 30 subjects was set, representing approximately one-third of the students electing to enter primary care fields. Because interviews were scheduled to occur at the end of the fourth year, when potential subjects were engaged in electives and acting internships, many of them out of town, a pool of subjects larger than might typically be needed was assumed to be necessary. Forty-six names therefore were selected. Of these, 28 students were interviewed, the remainder being unavailable to participate for the following reasons: overly-busy or conflicting schedules (7 students), unreachable through initial mail contact and repeated attempts to contact by phone (5), out-of -town rotations (2), no longer interested in primary care field (1), recent childbirth (1), and other (2).

Semistructured interviews, which lasted from 45 to 100 minutes, were held during the final three months of the 1990-1991 academic year. Each interview was audio-recorded and later transcribed. Students were asked to describe their experiences learning about patient education for health promotion in smoking cessation, nutrition for cardiovascular health, and exercise. If subjects did not spontaneously discuss all the desired information, prompts were used to elicit specific information about instructional formats and contexts, evaluation, techniques learned, courses, patients, attending physicians and housestaff, clinical sites, and clinical clerkships and rotations. At the end of each interview session, students completed the nine-item Self-confidence in Patient Education for Health Promotion questionnaire (see Appendix) regarding their perceptions of self-confidence in educating patients in the three health promotion areas. Both the interview guide and questionnaire were pilot-tested with medical students and reviewed by faculty in the schools of medicine and education.

The development of the Self-Confidence in Patient Education for Health Promotion questionnaire was guided by an examination of the ways self-efficacy has been measured in light of (a) self-efficacy theory, (b) Bandura's (1982) recommendations for adequate measurement, and (c) the literature on the evaluation of medical students' knowledge and skills in patient education for health promotion. An instrument similar to that needed here was identified (Mullen and Holcomb, 1990). Two problems with this instrument, however, were evident. First, magnitude of self-efficacy (i.e., measuring a hierarchy of tasks of increasing difficulty) was not addressed. Second, each item addressed two tasks, conveying appropriate information and conveying useful skills. Students typically have greater knowledge of risk factors than they do of clinical interventions, suggesting that these two skills need to be evaluated separately (Rubin, Sobal, & Moran, 1990). The two skills, therefore, were broken down to become the basis for the three items in each health promotion area, resulting in a three-tiered hierarchy to assess magnitude of self-efficacy. The following three tasks, in order of increasing difficulty, were listed for each area: (a) having knowledge of the benefits of the health-promoting behavior, (b) being able to convey information to patients, and (c) being able to engage patients in an educational process. The other dimensions of self-efficacy, strength and generality, were addressed respectively through a four-

point response scale for each item (1=completely lacking in confidence; 2 = somewhat lacking in confidence; 3 = somewhat confident; 4 = very confident) and the response pattern across the three health promotion areas.

In addition to the student interviews, interviews were held with six faculty members involved in health promotion-related programs and teaching. Two of the six had been named repeatedly by student subjects as being outstanding role models for educating patients in health promotion areas. Again, the semi-structured, focused interview method was used. Although each faculty interview was idiosyncratic, requiring a separate interview guide, the following list represents in general the focus of the interviews: (a) curriculum development activities in which they had participated, (b) the extent to which they perceive health promotion concepts to be included in the curriculum, (c) barriers to including health promotion in the curriculum, (d) course content and objectives related to health promotion, (e) their beliefs about the place of health promotion topics in the curriculum, and (f) clinical and classroom teaching methods used to train students in patient education for health promotion. Interviews were not audio-recorded, but extensive notes were taken.

Document and archive review constituted the third source of data. Documents that were reviewed included course outlines and syllabi, curriculum guides, catalogs, schedules, evaluation forms, summaries of activities funded by academic awards in preventive medicine, and various journal articles mentioned by interviewees as being valuable sources of information. Archival records of the medical school also were used. These included collections of data regarding student characteristics, specialty choice, and patterns of course preference. The documents and archives reviewed were valuable in providing details to corroborate information from other sources and to suggest avenues of inquiry (Yin, 1989).

Analysis. Two general analytic strategies were used: (a) relying on theoretical propositions to focus attention on relevant data, organize analytic categories, and define alternative explanations, and (b) developing a descriptive framework for the case that can delineate factors that should be analyzed (Yin, 1989). The work of Bandura (1977, 1981, 1982, 1986) and Schunk (1984, 1985, 1990) regarding self-efficacy provided the theoretical propositions, with ideas about appropriate

curriculum strategies also playing a role. In addition, an attempt was made to develop a cohesive description of the medical school program in patient education for health promotion as a whole that would inform the analysis of self-efficacy development.

Within these general approaches, more specific strategies were used. First, the data were sorted and organized. Second, the data were examined to identify and generate categories, themes, and patterns based on the four sources of self-efficacy information, the appraisal of efficacy information, and many aspects of student perspectives and learning experiences. Within this second strategy, the constant comparative method was used, which entailed coding, grouping, regrouping, and integrating the data (Strauss & Corbin, 1990). Third, the emergent theories were tested against the data. Finally, the data were searched to identify competing or alternative explanations (Marshall & Rossman, 1989). In the process of analysis, students' experiences were examined in two ways. First, discrete incidents or pieces of students' experiences were analyzed. Second, each student's experience was divided into three parts--experiences learning about smoking cessation, about nutrition, and about exercise--in order to make connections between experiences and self-efficacy levels in the three areas of health promotion.

From the self-efficacy questionnaire data, mean scores were computed for the following: each item; total for the entire questionnaire; total for each health promotion area (smoking cessation, nutrition, exercise); and total for each level of skill (knowledge, conveying information, engaging in an educational process). The analyzed quantitative data were compared with the qualitative data on an ongoing basis to develop ideas about the relationship of educational experience to self-efficacy level.

Reliability, Validity, Generalizability. Three strategies were used to enhance reliability of the study: (a) careful explication of each step in the research process to enable others to retrace the steps of the study, (b) use of multiple data sources, and (c) organization of the data in a manner that would be comprehensible to other researchers. Strategies used to help insure validity included using multiple sources of evidence, establishing a chain of evidence, performing member checks, using peer evaluation, and clarifying researcher biases (Goetz & LeCompte, 1984; Merriam, 1988; Yin, 1989). In qualitative research, generalizability, or the applicability of the findings beyond the

context of the immediate study, refers not to statistical generalizability, but to analytic generalizability. That is, the goal is to expand and generalize to a broader theory rather than to a population (Yin), or to use theoretical frames that are accessible to or understood by other researchers (Goetz & LeCompte). In this case, the object was not to generalize findings directly from this particular case to other medical schools or from this group of students to other medical students, but rather to generalize to a theory that then might be applied to other medical schools or to other students.

With regard to the self-efficacy questionnaire, Cronbach's alpha reliability coefficients were computed for the questionnaire as a whole and for each of six, three-item subscales and are reported in Table 1. Concerns regarding the validity of the self-efficacy questionnaire were addressed primarily through attending to the theoretical base of the instrument, building on prior researchers' instrumentation, and having experts review the instrument prior to use.

Table 1 Alpha Reliability Coefficients, Self-confidence in Patient Education for Health Promotion Questionnaire

Subscale/Scale	Items	Alpha Coefficient
Smoking Cessation	1-3	.74
Nutrition	4-6	.70
Exercise	7-9	.83
Knowledge of Benefits	1,4,7	.66
Convey Information	2,5,8	.81
Engage in Process	3,6,9	.87
Entire Scale	1-9	.88

Results

Overview of Learning Experiences in Patient Education for Health Promotion. Although no structured program on patient education for health promotion is included in the curriculum, a great variety of learning about this subject took place throughout the four years of medical school, both curricular and extracurricular. The learning that occurred, however, was neither systematic nor comprehensive. The preclinical curriculum provided basic information about the pathological effects of unhealthy behaviors as well as limited introductions to clinical work with patients, the development of the physician-patient relationship, and patient education strategies. Clinical rotations in the final two years gave students opportunities to see physicians educate patients and to try to educate patients themselves, primarily in family medicine rotations and, to a more limited

extent, in medicine, obstetrics and gynecology, and pediatrics rotations. Although discussion of the adverse effects of smoking was pervasive throughout the four years, and attention to basic science concepts in nutrition was extensive in one preclinical course, exercise was perceived to have been virtually ignored throughout.

Student experiences in learning about patient education in health promotion were not uniform. Especially in the clinical years, learning depended on the interest and involvement of the faculty member to whom the student was randomly assigned. Evaluation of student knowledge in this area was almost nonexistent. Students were not able to follow patients over time and therefore could not engage in long-term patient education programs or see the outcomes of such programs. Patient education in health promotion was perceived to be on "an optional shelf," with the decision to engage in it or not dependent on the personal inclination or interest of the individual faculty member or student. Amplifying this perception, students found the topic to be classified as inexact and difficult. Paradoxically, patient education was simultaneously thought to be merely an intuitive skill that requires no special training: "It was argued to me that the mere fact of our being in medical school gave us the ability to counsel patients."

For a majority of the students interviewed (21 out of 28), extracurricular activities were a major source, and for some students the most important source, of learning about patient education for health promotion. Student interest in and beliefs about the effectiveness and importance of patient education for smoking cessation, nutrition, and exercise motivated students to seek out opportunities to learn. Students reported having worked in free community clinics, where cost-effective primary prevention was stressed, and also reported non-clinical experiences, including participation in community health education programs, independent reading, informal alliances with faculty, and formal courses of study in the School of Public Health.

Sources of Self-efficacy Information. The various student experiences in learning about patient education for health promotion can be described in terms of sources of self-efficacy information. As described earlier, the four sources, in descending order of theorized influence, are performance, vicarious, persuasory, and physiological (Bandura, 1977, 1982, 1986). Performance sources of self-efficacy information were found primarily in the clinical curriculum

and in extracurricular clinical activities, where students were engaged in experiential learning through patient care and had many opportunities to perform patient education tasks. Family medicine rotations were especially rich sources of performance-related self-efficacy information. Outpatient experiences in medicine, obstetrics and gynecology, and pediatrics were also mentioned frequently as having presented opportunities to practice patient education skills. With regard to extracurricular activities, all of the students who had volunteered to work in the community clinics reported having counseled and educated patients on various health-promoting behaviors.

The power of vicarious sources of self-efficacy information was evident, beginning even in the preclinical years, when faculty primarily were modeling attitudes toward patients rather than specific techniques for patient education in health promotion. In the clinical years, vicarious experience was of vital importance to these students, as demonstrated by the following remarks made by students:

> In medicine you learn by doing, but you also learn by example, so if you don't see somebody doing something a particular way or if you don't see them doing it at all, then you aren't gonna learn it. You try and read on your own, but you spend so much time in the hospital that you learn by seeing what other people do. If you don't see them counseling patients on smoking, alcohol, nutrition, then you're not gonna learn it.
>
> We're real impressionable....When you're one-on-one with an attending in a room with a patient, there's not a more intense learning experience. Everything he does you pick up.

Vicarious information from clinical role models was not found consistently, however, and student assignment to role models who were skilled in patient education was a matter of "training by luck." In addition, many clinical role models demonstrated only that one should tell one's patients what to do with regard to healthful behaviors, rather than how to conduct more elaborate patient education.

Persuasory self-efficacy information involves instructors' statements to individuals about their ability to perform a particular task. Most of the persuasory information received by these students was indirect, not "you can do this," but rather "you need to do this," which only implies that they can. Faculty remarks about the need to tell patients to stop smoking pervaded both the preclinical and clinical years. Messages about the need to help patients improve their nutritional status or level of fitness were much rarer. This indirect persuasion, however, was combined with instruction in specific patient education strategies in only three contexts: (a) part of one 50-minute

lecture on smoking cessation in second-year epidemiology, (b) three sessions devoted to smoking cessation techniques during some third-year family medicine rotations, reported by only three students, and (c) rotations with certain attending physicians who explicitly taught those techniques to students through modeling or providing written materials or both. Being told that one can or must do a particular task is not especially helpful unless it is combined with explicitly taught strategies for carrying out that task (Schunk, 1985): "We were told to counsel our patients. We were never instructed on how." In addition, statements that one needs to perform a particular task imply a distal goal, with no intermediate or proximal goals to guide one's progress.

Physiological sources of self-efficacy information were not reported directly by students. Some, however, preceded descriptions of their own patient education practices with some variation of the remark, "When I would see patients on my own...." These remarks were perhaps an indication of discomfort with the task itself, or they may have resulted from a perception that patient education for health promotion was not an acceptable activity in which to engage. In addition, a faculty member made reference to students' feelings of discomfort in educating patients and commented on how he dealt with those feelings.

Although a learning experience may involve primarily one source of self-efficacy information, several sources may be integrated in a single experience, especially in a clinical learning situation. For example, students may watch someone model a task, have the opportunity to perform the task, hear--explicitly or implicitly--that they have the ability to perform the task, and feel relaxed while carrying out the task. In addition, educational practices that enhance self-efficacy development may be embedded in the experience. These may include combining explanations with modeling, training in the use of strategies, setting implicit or explicit goals, and giving feedback to students. Integrated experiences of this nature, however, were far from universal among this group of students.

Patterns of Experience. Early in the student interviewing process, it became apparent that striking differences existed in the depth and breadth of student experiences in learning about patient education for health promotion. In addition, some students felt satisfied with what they had been able to learn, others felt that their experiences had been inadequate, and some considered learning

patient education for health promotion to be inappropriate or unimportant. In examining students' accounts of their experiences, differences in degree of student interest initially was the most obvious characteristic. The majority of students were interested and involved in learning about patient education, but a distinct minority were not. Within the group of interested students, however, experiences were varied. Additional factors, therefore, had to be found to explain these variations.

Further examining the experiences of the interested students revealed the key role played by the presence of a clinical faculty role model. When experiences were sorted based on the presence or absence of a role model as well as degree of student interest, five key elements emerged as the distinguishing features of various patterns of experience: (a) degree of individual student interest and initiative in pursuing learning in health promotion, (b) beliefs about appropriate roles for physicians and medical students with regard to patient education in health promotion, (c) extent of opportunities taken to actually perform patient education, (d) presence or absence of a clinical instructor role model in patient education for health promotion, and (e) degree of sophistication of patient education strategies learned by the student. Using these five elements as distinguishing criteria, each student's experience in each of the three health promotion areas was analyzed. The experiences fell into three primary patterns, each varying on two or more of the five criteria. Table 2 summarizes the characteristics of the three patterns.

Table 2 Defining Characteristics of Patterns of Student Experience

Characteristic	Pattern One	Pattern Two	Pattern Three
Student Interest	Strong	Strong	Weak
Belief Regarding Role	Active involvement	Active involvement	Improper, not feasible
Opportunities to Perform	Many taken	Many taken	Few or none taken
Role Model	Present	Absent	Absent
Strategy Sophistication	High	Medium	Low

The first pattern of experience is marked by intense interest on the part of students, who believed in active physician involvement in promoting health through education and who took as many opportunities as possible to counsel and educate patients. A great deal of independent study and involvement in extracurricular, primary care clinical activities occurred with this type of

experience. Interest and involvement, however, are not the critical factors in this pattern. The primary distinguishing characteristic is the opportunity, acquired serendipitously, to learn from a clinical role model whose work reflected the importance of health promotion responsibilities. These role models demonstrated specific patient education strategies similar to established standards (U. S. Preventive Services Task Force, 1989), encouraged students to engage in patient education, and provided opportunities for students to do so. They also conveyed their interest in health promotion, their sense that health promotion is an important and acceptable sphere of physician involvement, and their expectation that students would attend to health promotion as well. The strategies that students learned through this pattern of experience were patient-centered and compared favorably with those recommended by the U.S. Preventive Services Task Force. Students whose learning experiences fit this pattern expressed satisfaction with their education in the health promotion area involved.

In Pattern One, abundant self-efficacy information from performance and vicarious sources clearly is evident. Persuasory self-efficacy information is implicit in the expectations conveyed to students. Physiologically-based self-efficacy information is suggested if one assumes that by learning specific techniques the student will feel more comfortable performing the task. In addition, information from the various sources is integrated. Consistent with the greater attention paid to smoking cessation throughout the curriculum, fourteen students had experiences fitting this first pattern in smoking cessation, while only eight had such experiences in nutrition, and nine in exercise.

To a point, the second pattern is identical to the first. Student interest in health promotion is strong, as are beliefs in the importance of active physician involvement in health promotion activities and in the effectiveness of patient education. Students took many opportunities to educate patients in the three health promotion areas in both curricular and extracurricular contexts. The striking difference between this pattern and the first, however, is the absence of a clinical role model to demonstrate and provide supervised opportunities for practicing patient education. The hallmark of this pattern was a sense of frustration at not being taught explicitly the skills needed to perform patient education in health promotion.

> It was really quite frustrating. I looked into it...but that was all reading it on my own. A lot of attendings just told us to tell our patients to stop smoking...so we never got practical information.

This pattern of experience is characterized by less complete and sophisticated knowledge of patient education strategies. One student, for example, remembered seeing a "charcoaled lung" in a second-year pathology class and followed the professor's admonition to "share this experience with your patients." Self-efficacy information from performing patient education tasks was abundant within this pattern of experience. Information from vicarious sources, however, was absent, and no explicit strategy training accompanied exhortations to tell patients to improve their health-related behaviors. More student experiences fell into Pattern Two than any other--eight in smoking cessation, fourteen in nutrition, and fourteen in exercise.

The third pattern of experience represents a sharp departure from the first two patterns in that it is governed by different interests and beliefs on the part of the students. The seven students describing experiences fitting this pattern expressed disinterest in one or more of the health promotion areas or in health promotion in general. In addition, they believed, as one student said, that patient education in health promotion is "neither feasible nor proper" for practicing physicians or as a focus of study in undergraduate medical education. Four of the students whose experiences fit this pattern intended to subspecialize within their chosen field, and their interests kept them focused on hospital-based acute care. The few opportunities that students reported taking to conduct patient education in health promotion were limited to telling patients what to do or referring them to ancillary services. Students either did not encounter or did not recognize faculty role models and developed only rudimentary skills in patient education. Within Pattern Three, self-efficacy information is severely limited, with only general persuasory information present, and no efficacy-enhancing educational practices are evident.

Self-efficacy Levels. Self-efficacy scores for the group of subjects as a whole are reported in Table 3. Total mean scores were obtained by adding across the three health promotion areas (smoking cessation, nutrition, and exercise), across the three skill difficulty levels, and across all items. In addition, generality of self-efficacy was assessed by examining the range of scores across the three health promotion areas. For most students, the range was small, lending support to the notion that self-efficacy perceptions extend across the three areas.

Table 3 Mean Self-efficacy Scores in Patient Education for Smoking Cessation, Nutrition, and Exercise (N = 28)

Skill	Smoking Cessation Mean (SD	Nutrition Mean (SD)	Exercise Mean (SD)	Total Mean (SD)
Knowledge regarding benefits	3.57 (.50)	3.21 (.74)	3.46 (.51)	10.25 (1.38)
Convey information to patients	3.21 (.63)	2.96 (.69)	3.07 (.90)	9.25 (1.92)
Engage in educational process	2.79 (.96)	2.82 (.72)	2.79 (.88)	8.39 (2.30)
Total	9.57 (1.75)	9.00 (1.70)	9.32 (2.02)	27.89 (4.73)

Among the three patterns of experience, however, self-efficacy levels varied, as illustrated in Table 4. Again, mean scores were obtained by adding across the three health promotion areas and across the three difficulty levels. Different health promotion areas were represented unevenly in the various patterns, resulting in unequal numbers of students for each health promotion area subscale. Fourteen students, for example, had Pattern One experiences in the area of smoking cessation. Only eight had similar experiences in nutrition. With regard to the mean scores for the three difficulty levels, the number of scores included in the computation was limited due to the uneven representation of the three health promotion areas.

Table 4 Mean Self-efficacy Scores By Pattern of Experience

Subscale	Pattern One Mean (SD)	Pattern Two Mean (SD)	Pattern Three Mean (SD)	Pattern Three Minus Outlier Mean (SD)
Area				
Smoking Cessation	10.64 (.93) N=14	8.75 (1.39) N=8	8.17 (2.23) N=6	7.40 (1.34) N=5
Nutrition	10.25 (1.28) N=8	8.50 (1.45) N=14	8.50 (2.07) N=6	7.80 (1.30) N=5
Exercise	11.11 (1.05) N=9	8.57 (1.56) N=14	8.20 (2.59) N=5	7.25 (1.71) N=4
Level of Skill				
Knowledge	10.88 (.99) N=8	10.38 (.92) N=8	9.00 (.71) N=5	8.75 (.50) N=4
Convey	11.00 (1.20) N=8	8.63 (.92) N=8	8.00 (1.23) N=5	7.75 (1.26) N=4
Engage	10.13 (.99) N=8	7.38 (1.19) N=8	6.40 (1.52) N=5	6.00 (1.41) N=4
Total Scale	32.00 (2.20) N=8	26.38 (2.50) N=8	23.40 (2.88) N=5	22.50 (2.38) N=4

For Pattern Three, scores are reported both with and without a set of outlier scores. One student reported self-efficacy perceptions that were much stronger than those of other students whose experiences fit Pattern Three. Despite attitudes, beliefs, experiences, and knowledge fitting Pattern Three in all health promotion areas, this student had a total self-efficacy score of 36. This

may have been due to error, subject naivete (Froman, 1991), having received inadequate information on performance, or having ill-defined performance requirements (Bandura, 1977). Given the small number of experiences that fell into Pattern Three, the effect of these high self-efficacy ratings on the mean scores associated with that pattern was large.

Consistent with the apparent differences in self-efficacy information available to students in the various patterns of experience, self-efficacy scores varied across the three patterns. Although inferential statistics were considered inappropriate for these data, the descriptive statistics presented illustrate the differences associated with each pattern. Pattern One was associated with the strongest self-efficacy perceptions in all areas, followed by Patterns Two and Three. Contrary to what one might expect, scores across the three difficulty levels were similar within Pattern One. This was not the case for Patterns Two and Three, which were associated with scores that decreased as level of difficulty increased. Self-efficacy levels for the knowledge skill level were similar for Patterns One and Two, perhaps an indication of the commonalities among the students having Pattern One and Pattern Two experiences. Pattern Three experiences were associated with the weakest perceptions of self-efficacy in all areas.

Conclusions

Patient Education for Health Promotion in the Medical School. The impetus for this study was the observation that shifts in the focus of this country's health care system pose problems and hold important implications for medical education. Changes in the patterns of disability and death suggest the necessity for a broadened paradigm of medical care that includes physician attention to promoting healthy behaviors in patients. Such an emphasis, however, implies a new role for physicians, that of patient educator, a role for which many physicians are untrained and therefore with which they are uncomfortable. A limitation of this study is that the students selected as subjects were those who have chosen to enter primary care specialties, and therefore represent those medical students who are most likely to be interested in health promotion. If a wider selection of students had been included, a different picture of medical student experience may have been drawn, comprising fewer learning experiences and weaker self-efficacy perceptions. In addition, this study, involving only one medical school, must be considered to be exploratory.

Further research in other medical schools could help clarify and extend the findings and issues addressed here.

In this case, opportunities for students to learn about patient education for health promotion appear haphazardly throughout the four-year curriculum. In the preclinical years, information about the deleterious physiological effects of smoking and poor nutrition appears in the curriculum, but little attention is paid to exercise and fitness. The knowledge students acquire focuses on the pathophysiological outcomes of smoking and eating behaviors. Although certainly it is appropriate and necessary to learn about these physiological effects, there is a failure to teach students specific patient education skills as well. When patient education is addressed, most often with regard to smoking cessation, it typically takes the form of advising students that they should remember the adverse effects and tell their patients to stop smoking or to eat right.

Integrating these topics into the clinical curriculum is an even more acute problem. Great variation exists among clinical faculty with regard to the degree and manner in which they attend to patient education. Although many clinical faculty attend to patients' health-related behaviors, especially smoking and nutrition, their level of sophistication in patient education varies widely, congruent with differences of opinion about what constitutes an appropriate role for physicians. These differences among faculty reflect the tension within the medical profession between an illness-focused approach to health care and the acknowledgement of the need for attention to health promotion (Rosen et al, 1984). The clear implication is that, at the school that was the focus of this study, explicit training in patient education related to health-promoting behaviors is not considered essential.

Self-efficacy Theory. Self-efficacy theory hypothesizes that successful self performance of a task is the strongest source of self-efficacy information, and that self-performances offer quite reliable guides for assessing self-efficacy (Bandura, 1977, 1982, 1986; Schunk, 1984). However, "even when students acquire self-efficacy information from self-performances, subsequent efficacy judgments are not mere reflections of those performances" (Schunk, 1984, p. 49). In forming judgments of their efficacy, people appraise cognitively the information they have received, taking into account other influences, including those deriving from educational practices.

Although a student may have performed apparently successful patient education in smoking cessation, nutrition, or exercise, various features of the total educational experience may fail to validate the self-efficacy judgments derived from those experiences. Self-efficacy, in other words, is not acquired automatically. In the absence of clear role models, in the absence of feedback, in the absence of specific goal statements, in the absence of strategy training, and in the absence of seeing patient outcome, even self-efficacy derived from actual task performance is affected.

Even when a student is strongly interested and seeks out learning experiences within or outside the curriculum, there is no guarantee that adequate skills in patient education for health promotion will be acquired. Interested, involved, and skilled faculty play a vital role. Not only do faculty role models validate students' interests in this area, but they also demonstrate skills in patient education, teach these skills to students in a systematic manner, and provide explicit feedback. In terms of self-efficacy theory, these faculty encourage students' integration of self-efficacy information by serving as sources of vicarious information, facilitating opportunities for performance, and giving explicit persuasory information. As long as student exposure to such faculty is a matter of serendipity, however, adequate learning in the area of patient education in health promotion will not be widespread.

Implications for Curriculum Development. Jonas (1987) argues that a student-centered, problem-based, integrated curriculum is necessary for the incorporation of preventive medicine in undergraduate medical training. Given the slow pace of change within medical education (Bloom, 1989), however, waiting for the establishment of problem-based curricula before trying to include health promotion in the curriculum would not be prudent. In addition, the pattern of experience of some of the students in this study suggests that adequate learning can occur given the appropriate conditions. Although based only on one case, recommendations can be made with regard to specific educational practices that may enhance the development of self-efficacy: (a) set specific, explicit goals with regard to patient education in health promotion, (b) integrate explicit training in patient education strategies at appropriate stages of the curriculum, (c) increase student exposure to physicians who are appropriate models in this area, (d) give students opportunities to practice their skills with both real and simulated patients, (e) provide explicit feedback to students regarding their

performance and regarding their progress toward meeting goals in learning patient education for health promotion, and (f) incorporate opportunities for students to see outcomes of patient education by arranging for students to follow selected patients over time.

The significance of role models to the students in this study was striking. Does effective learning of patient education in health promotion require these role models, or can an adequate learning experience be developed without first increasing the numbers of clinical faculty role models in this area? Probably a major reason for the importance of role models to students here was the severe shortage of systematic attention to student learning in the area of patient education for health promotion. The role models that were encountered provided much that was missing in the curriculum: explicit goals, explicit training, and opportunities and encouragement to practice skills. Although role models are important, and an ideal program would include extensive exposure to role models, having explicit objectives in this topic area and systematically providing learning opportunities through simulations, small group discussions, directed readings, videotaping, role-playing, and the like should be sufficient until a larger pool of faculty are available to serve as role models.

Often the assessment of the outcomes of clinical education for students presents a difficult problem. Standardized written tests of knowledge and non-specific reports of observations by clinical faculty are often the only means used to evaluate student performance. Although not a substitute for direct evaluation of skills, self-efficacy measures offer an additional way to assess the impact of an educational program on student development. The relationship between self-efficacy and behavioral initiation and persistence makes it a useful construct to incorporate in the evaluation of medical students and curricula. That high self-efficacy may promote persistence is especially important to consider when dealing with a task whose ultimate outcome (i.e., patient behavior change) is beyond the control of the patient educator. In the case of this study, the self-efficacy questionnaire proved to be a useful means to assess students' self-efficacy, and, combined with an analysis of learning experiences, helped in assessing the process of self-efficacy development.

Appendix: Self-efficacy Questionnaire

Self-confidence in Patient Education for Health Promotion

Please circle the appropriate response for each item, using the following scale:

1=completely lacking in confidence
2=somewhat lacking in confidence
3=somewhat confident
4=very confident

A. Smoking Cessation

1. How confident are you that you **have knowledge about the benefits of smoking cessation** adequate to teach or counsel patients?

1 2 3 4

2. How confident are you that you **can convey to your patients** the information they need to quit smoking?

1 2 3 4

3. How confident are you that you **have the skills to engage patients in an educational process for behavior change** with regard to smoking?

1 2 3 4

B. Nutrition for Cardiovascular Health

4. How confident are you that you **have knowledge about the benefits of heart-healthy nutrition** adequate to teach or counsel patients?

1 2 3 4

5. How confident are you that you **can convey to your patients** the information they need about heart-healthy nutrition?

1 2 3 4

6. How confident are you that you **have the skills to engage patients in an educational process for behavior change** with regard to heart-healthy nutrition?

1 2 3 4

C. Exercise and Fitness

7. How confident are you that you **have knowledge about the benefits of exercise and fitness** adequate to teach or counsel patients?

1 2 3 4

8. How confident are you that you **can convey to your patients** the information they need about exercise and fitness?

1 2 3 4

9. How confident are you that you **have the skills to engage patients in an educational process for behavior change** with regard to exercise and fitness?

1 2 3 4

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